

**AMENDMENTS TO THE CLAIMS**

1-57. (Cancelled)

58. (Currently Amended) A method for down-regulating ~~on~~ of autologous OPGL in a human ~~subject~~ n individual in need thereof, the method comprising effecting presentation to the immune system of said subject ~~administering, to the individual,~~ an effective amount of an autologous, immunogenic agent that induces ~~capable of inducing an immune response against the~~ that cross reacts with the OPGL of said subject's OPGL ~~and thereby down-regulates the~~ OPGL of said subject.

59. (Currently Amended) A method for down-regulating ~~on~~ of autologous OPGL in a human ~~subject~~ n individual in need thereof, the method comprising effecting presentation to the immune system of said subject ~~administering, to the individual,~~ an effective amount of an autologous immunogenic agent that induces ~~capable of inducing an antibody response that cross reacts with the OPGL of said subject against the subject's autologous~~ and thereby down-regulates the OPGL of said subject ~~OPGL.~~

60. (Cancelled)

61. (Currently Amended) A method for treating, or ~~ameliorating or preventing a~~ disease characterized by excessive bone resorption in a human subject in need thereof, the method comprising ~~administering, to the~~ effecting presentation to the immune system of said subject,

an effective amount of an autologous immunogenic agent that induces ~~capable of inducing~~ an immune response ~~against the~~ that cross reacts with said subject's autologous OPGL, wherein said immune response comprises antibodies that neutralize said autologous OPGL and thereby down-regulate osteoclast differentiation, maturation, formation and activation and bone resorption.

62. **(Currently Amended)** A method for treating ~~or~~, ameliorating ~~or preventing~~ a disease characterized by excessive bone resorption in a human subject in need thereof, the method comprising administering, to ~~the said~~ subject, an effective amount of an autologous immunogenic agent that induces ~~capable of inducing~~ an antibody response ~~against the~~ that cross reacts with said subject's autologous OPGL, wherein said antibody response comprises antibodies that neutralize said autologous OPGL and thereby down-regulate osteoclast differentiation, maturation, formation and activation, and wherein said immunogenic agent is an OPGL polypeptide comprised of the sequence set forth in SEQ ID NO: 2.

63. – 66. **(Cancelled)**

67. **(Currently Amended)** A method for treating or ameliorating disease characterized by excessive bone resorption comprising administering to a human subject suffering from or in danger of suffering from osteoporosis ~~at risk or in need thereof~~ an effective amount of an autologous immunogenic agent that induces ~~capable of inducing~~ an immune response ~~against the~~ that cross reacts with the OPGL of said subject, ~~'s autologous OPGL~~ wherein said immune response comprises antibodies that neutralize said autologous OPGL and thereby down-regulate osteoclast differentiation, maturation, formation and activation.

68. **(Currently Amended)** A method for treating or ameliorating disease characterized by excessive bone resorption comprising administering to a human subject suffering from or in danger of suffering from osteoporosis ~~at risk or in need thereof~~ an effective amount of an autologous immunogenic agent that induces ~~capable of inducing~~ an antibody response against the OPGL of said subject's autologous OPGL wherein said antibody response comprises antibodies that neutralize said autologous OPGL and thereby down-regulate osteoclast differentiation, maturation, formation and activation, and wherein said immunogenic agent is an OPGL polypeptide comprised of the sequence set forth in SEQ ID NO: 2.

69. **(Currently Amended)** The method according to any one of claims 58, 59, 61, 62, 67 or 68, wherein ~~the~~ said immunogenic agent is presented to the immune system of said subject as a peptide immunogen, a nucleic acid immunogen and/or a non-pathogenic organism ~~selected from the group consisting of a polypeptide vaccine, a nucleic acid vaccine, a live vaccine, and a viral vaccine.~~

70. **(Currently Amended)** The method according to any one of claims 58, 59, 61, 62, 67 or 68, wherein ~~the~~ said immunogenic agent is in admixture with an adjuvant.

71. **(New)** The method according to any one of claims 58, 59, 61, 62, 67 or 68, wherein said ~~immunogenic~~ immunogenic agent is an OPGL polypeptide is comprised of at least one member selected from the group consisting of amino acids 159-317 of SEQ ID NO: 2; amino acids 171-

193 of SEQ ID NO: 2; amino acids 199-219 of SEQ ID NO: 2; amino acids 222-247 of SEQ ID NO: 2; and amino acids 257-262 of SEQ ID NO: 2.

72. **(New)** The method according to claim 69, wherein said non-pathogenic organism is bacteri at least one member selected from the group consisting of attenuated *Mycobacterium bovis*, *Streptococcus* spp., *E. coli*, *Salmonella* spp., *Vibrio cholerae*, *Shigella*, vaccine and pox virus.

73. **(New)** The method according to claim 70, wherein said adjuvant is at least one member selected from the group consisting of dimethyldioctadecylammonium bromide,  $\gamma$ -inulin, Freund's complete adjuvant, Freund's incomplete adjuvant, *quillaja* saponins, RIBI, monophosphoryl lipid A, muramyl dipeptide, liposomes, immunostimulating complex matrix adjuvants, phospholipid adjuvants, cholesterol, anti-Fc $\gamma$ RI conjugates, cytokines, CD40 ligand, CD40 antibodies, mannose, Fab, CTLA-4, dextran, PEG, starch, mannose and latex beads.

74. **(New)** The method according to any one of claims 58, 59, 61, 62, 67 or 68, wherein said immunogenic agent comprises an OPGL polypeptide.